SECTION VII. Natural Resource Conservation

Preservation of farmland is the cornerstone of the New Jersey Department of Agriculture's (NJDA) Agricultural Smart Growth Plan, and the State and County's Farmland Preservation Program. However, there is more to farmland preservation than the retirement of development rights or the outright purchase of farms. One of the cornerstones of a successful, long term Farmland Preservation Program is the conservation of natural resources on farms, without which the long-term sustainability and viability of New Jersey's preserved farmland would be in doubt. Millstone Township recognizes the conservation of these natural resources as a long-term goal, and a necessary part of farmland preservation.

A. Natural Resource Protection Agencies

Natural Resource Conservation Service

An important partner in support of natural resource conservation for the agricultural community is the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). The NRCS assists landowners and managers with conserving soil, water and other natural resources. The agency has a field office at the county's agricultural building in Freehold Township and offers technical and financial assistance and oversees conservation programs such as the Wildlife Habitat Incentive Program (WHIP) and Environmental Quality Incentive Program (EQIP).

Technical assistance is provided for the preparation of conservation plans. These plans are a written record of management suggestions and conservation practices to be used on a farm and are intended to help protect soil fertility and productivity, improve water quality and attract desirable wildlife.

Conservation Plans are required within one year of the date of the deed of easement for those who wish to sell their property or sell a development easement via the Farmland Preservation Program or apply for natural resource conservation program grants such as the WHIP and EQIP. The local NRCS office administers these conservation program grants, which offer financial incentives to support conservation projects, including stream riparian buffers and wildlife habitat. Administration of these grant programs includes field visits to prepare the Conservation Plans, preparation of grant program contracts, assistance with installation of contract conservation practices, and inspection of farms to verify that the contract conservation practices are implemented and maintained.

Based on the NRCS mapping of soils within Millstone Township, approximately 23% of the soils have low runoff rates and high infiltration rates; approximately 45% of the soils have moderate runoff and infiltration rates; approximately 31% of the soils have high to very high runoff rates and low to very low infiltration rates; and the remaining 1% of the Township is underlain with unclassified urban soils or are covered with water.

Hydric soils are defined as being saturated, flooded or ponded for usually one week or more during the growing season. These soils often support hydrophilic vegetation. According to the NRCS soil mapping, hydric soils account for approximately 20% of the Township. A study by the Soil Conservation Service in Monmouth County prior to 1992 identified low-ph or acid soils in fifteen locations within Millstone Township. Thirteen of those locations were in the northwestern half of the Township. The acid soils were found in outcrop zones of the Englishtown, Wenonah, Marshalltown

and Navesink formations and ranged in depth from 4-16 feet. The Monmouth County Soil Conservation District provides a detailed method of mitigation for acid producing soils.

Based on its large agricultural use both currently and in the past, historic pesticide contamination is a concern within Millstone Township. The Land Development Ordinance requires site investigation and soil sampling for all development applications prior to Board approval to ensure that contamination levels do not exceed the New Jersey Department of Environmental Protection Soil Cleanup Criteria.

Soil Conservation District

An additional partner in the conservation of agricultural resources is the New Jersey Department of Agriculture, Division of Agricultural and Natural Resources. Among its responsibilities, the Division implements the natural resource conservation programs administered by the State Soil Conservation Committee (SSCC). These programs provide engineering services and regulatory guidance to soil conservation districts, homeowners, engineers and planners regarding virtually all development activities, with the goal of reducing the danger from storm water runoff, retarding non-point source pollution from sediment, and conserving and protecting the land, water and other natural resources of the State.

Millstone Township is served by the Freehold Soil Conservation District. The Soil District Office mailing address and website is:

Freehold Soil Conservation District
4000 Kozloski Road
P.O. Box 5033
Freehold, NJ 07728-5033
www.freeholdscd.org

The Freehold Soil Conservation District is charged with reviewing and approving natural resource conservation and assistance program grants, implementing agricultural conservation planning assistance, agricultural conservation cost-sharing program grants, application of organic materials on agricultural land, agricultural water supply and management, soil erosion and sediment control, storm water discharge authorization, and soil surveys.

In accordance with soil standards, construction, grading and demolition projects that disturb more than 5,000 square feet of the surface area of the land require soil erosion and sediment control plans. Commercial farms may be required to prepare such plans for parking lot installation, soil grading and the erection of agricultural structures. Cultivation of farmland for food, fiber or animals is typically exempt.

B. Natural Resource Protection Programs

SADC Soil and Water Conservation Grant Program

The SADC Soil and Water Conservation Grant Program awards grants of up to 50% the project cost to owners of permanently preserved farms and eight-year program participants. Irrigation, erosion control, and stream corridor enhancement projects are among those that are eligible.

Federal Conservation Programs

The NRCS and Farm Service of America (FSA) administer a number of Federal Farm Bill programs including the Environmental Quality Incentives Program (EQIP), Wildlife Habitat Incentives Program (WHIP) and the Conservation Reserve Enhancement Program (CREP). EQIP funding is utilized for

irrigation projects, manure management, and conversion of gas engines to diesel. The WHIP program is designed for non-federal landowners who wish to improve or develop fish and wildlife habitats. CREP is intended to reduce agricultural water runoff and improve water quality by paying farmers to remove highly erodible pastureland and cropland from production.

As of 2007 fiscal year, Millstone Township has no farmers participating in WHIP or CREP. However, one farmer is addressing water conservation and air quality on approximately 500 acres within the EQIP program.

NJDEP Landowner Incentive Program

New Jersey's Landowner Incentive Program provides technical and financial assistance to private landowners interested in conserving threatened and endangered plant and animal species on their property. Potential projects include vernal pool restoration, prescribed burns, and stream fencing.

C. Water Resources

The protection of the water resource as it relates to agriculture and farmland preservation in Millstone Township cannot be overstated. Without a consistent, plentiful, adequate and clean water source, agriculture cannot exist. In addition, farms provide critical open space areas for aquifer water recharge. To a certain extent, some aspects of ensuring clean and plentiful water can be controlled at the individual farm level, by doing the following:

- Minimizing the use of synthetic chemicals such as fertilizers, herbicides, pesticides, and fungicides so as to lessen impacts to groundwater;
- Providing riparian buffers along watercourses, so as to protect streams from the above-mentioned synthetic chemicals, and from soil erosion;
- When possible, practicing organic farming methods;
- Practicing appropriate timing of chemical application, so as to minimize its use; and,
- Practicing water conservation techniques, such as drip irrigation and water re-use for certain types of farming where feasible, such as smaller scale vegetable and fruit operations.

Supply Characteristics

The quality of the surface and groundwater within Millstone Township is of both local and regional importance. Millstone Township serves as a recharge area for one of the fastest growing regions in New Jersey and is at the headwaters for five watersheds: Crosswicks Creek, Barnegat Bay, Central Delaware Tributaries, Lower Raritan-South River-Lawrence, and the Millstone River. Further, the source of all drinking water within the municipality is from individual wells fed by groundwater. Therefore, the protection of groundwater resources is especially important to the Township.

Water quantity is also critical to the quality of life of Millstone Township residents. The Township is located entirely within the Coastal Plain Sole Source Aquifer. According to the United States Environmental Protection Agency, sole source aquifers are those aquifers which contribute more than 50% of the drinking water to a specific area and the water would be impossible to replace if the aquifer were contaminated.

In June 2002, the Township contracted M2 Associates to conduct an evaluation of groundwater resources of the Millstone Township. The study was requested because the increased density of

housing and surface/subsurface improvements can impact aquifers which may lead to reduced recharge, lower yields, increased interference, and the degradation of groundwater quality.

The report found that Millstone Township could sustain the water supply demands of a population of approximately 9,800 persons, or approximately 800 more than resided within the Township during the 2000 census. The rep01t also found that groundwater is withdrawn from a confined/semi-confined aquifer system and disposed into an overlying unconfined system throughout most of the Township.

At least 84% of the Township's wastewater is not returned to the aquifer from which it was originally withdrawn. This results in a depletion of the confined/semi-confined aquifer. In 16% of the Township, discharges from the septic system could be returned to the originating aquifer. However, the wastewater from a septic system does not meet Federal or State Drinking Water Quality standards and would require dilution within the aquifer to adequately reduce the concentrations of contaminants.

The M2 report found all but one aquifer system within Millstone Township is capable of meeting most or possibly all of the water supply needs. Of the five aquifers within Millstone Township (Englishtown, Wenonah-Mount Laurel, Shrewsbury, Vincentown and Kirkwood-Cohansey) only the Kirkwood-Cohansey system does not meet NJDEP regulatory requirements because it contains aquicludes or other confining units that are essentially incapable of yielding adequate groundwater supply demands and, therefore, cannot be utilized for resident well systems.

Agricultural Demand & Supply Limitations

Since there is no infrastructure in Millstone Township, the majority of farmers utilize surface waters and wells to provide water for their farms. Agricultural Water Use Certificates must be obtained from the County agricultural agent if a person has the capability to divert ground and/or surface water in excess of 100,000 gallons per day for agricultural, aquacultural or horticultural purposes. The application is then submitted to the NJDEP Division of Water Supply and Geoscience, Bureau of Water allocation & Well Permitting for review and approval. According to the Agricultural Water Usage Certification Application, diversions greater than 70 gallons per minute occur or 3.1 million gallons or more are utilized per month are required to be submitted. The applications are required to reference the valid State Well Permit Numbers and wells must be permitted for their intended use.

Conservation & Allocation Strategies

An adequate water supply is important to successful agriculture operations in Millstone Township. According to the 2006 Agricultural Smart Growth Plan, the SADC encourages farmers to accelerate the use of efficient water conservation technologies, such as drip irrigation, and to identify and promote new and efficient methods to conduct water distribution on farms, such as farm ponds and water reuse options.

The field crops rely on rain and some groundwater for water needs, and as such water conservation strategies per se are difficult to implement; however, an increase in the organic content of the soil will improve water holding capacity. This can be done by spreading manure, applying composts, using cover crops between or amid cash crops, and reducing tillage.

With nursery and greenhouse, sod, and vegetable farming, it is possible to implement conservation strategies such as drip irrigation, or watering crops in the cooler parts of the day so as to minimize

evaporation. Water re-use is another possible option. When managing plants for water conservation, farmers should select species adapted to local conditions. Native and drought tolerate plants can help reduce water needs. For livestock, floats and timers in watering troughs can conserve water by negating the need for constantly running water to keep troughs full.

Millstone Township farmers should implement water conservation strategies whenever feasible and include such in Conservation Plans whenever practicable.

D. Waste Management Planning

Management of livestock waste has serious implications for the quality of ground and surface waters. Unchecked, or poorly managed, these wastes can cause serious water quality problems by the introduction of unwanted microorganisms into natural systems. Poor management of animal waste can also cause disease among farm animals. Proper animal waste management is not only required, but also is a sign of good environmental stewardship, as is recycling of farm by-products whenever possible.

According to the Farmland Assessment data, Millstone Township had over 3,000 farm animals in 2017. This represents an increase from the 2,200 farm animals from 2004. The waste from these animals can contribute to water pollution by increasing nutrients, nitrates, sediment, and bacteria at unhealthy levels in surface waters.

Concentrated Animal Feeding Operations (CAFO) are operations with more than I ,000 slaughter or feeder cattle, 700 dairy cattle, 2,500 swine, 500 horses or other animal populations or operations with more than 300 slaughter or feeder cattle, 200 dairy cattle, 750 swine, 150 horses or other animal populations, and which discharge pollutants directly to state waterways either through manmade devices or as a result of water passing through the facility or having direct contact with confined animals. These farms are required to have waste management plans to ensure that animal wastes are properly managed. In addition, any livestock operation receiving EQIP funds must have a waste management plan.

Concentrated Animal Feeding Operations (CAFOs) and Animal Feeding Operations (AFO) have the potential to, or do cause, water pollution through the collection of large amounts of animal waste in relatively small areas. Mismanagement of the animal waste has the potential to cause large an1ounts of soil and groundwater contamination via introduction of the bacteria, fecal coliform, a known contaminant from animal farming operations. The state's agricultural community bears a responsibility to help protect and restore natural resources for which they are the stewards.

The NJDEP has outlined a statewide strategy to manage and regulate these operations. The strategy calls for NJDEP to administer CAFO permits and NJDA to administer the appropriate measures for AFOs. The permits and measures require development and implementation of comprehensive waste management plans, utilizing "animal waste standards" proposed by NJDA for adoption in late 2007. The strategy emphasizes the use of cost-effective voluntary measures, limiting the need for permits.

Millstone Township researched a waste management program to recycle farm animal manure for horse farms and other animal enthusiasts. The program would hire high school and college students and provide experience in horticulture and agriculture waste education along with providing the region with topsoil and potting soil for commercial and residential needs. The plan

anticipated that the project would start with four five-acre plots. Each plot would take 90 days to process the horse manure and would produce 67,000 cubic yards of soil. The facility would comply with all State and Federal regulations. The project would also invest in the collection of storm water runoff that could be utilized as organic fertilizer for pepper farms and other customers. A privately-owned commercial operation that accepts farm animal manure is another option.

E. Energy Conservation Planning

The New Jersey Department of Agriculture emphasizes the importance of energy conservation and alternative energy use in its Agricultural Smart Growth Plan. The Plan indicates that it is important to promote the use of innovative technologies, recycling, energy conservation and renewable energy systems on New Jersey's farms and to provide technical assistance for the agricultural community about new and existing energy conservation and renewable energy programs by promoting the financial and environmental benefits of implementing these programs.

The agricultural community has shown initiative in pursuing alternative energy sources, such as solar, wind and bio-gas in running farm operations, and by being a leader in the pursuit of ethanol and bio-diesel fuel markets. Millstone Township encourages farmers to participate in alternative and sustainable energy sources.

F. Outreach & Incentives

Millstone Township provides information and education of natural resources to local residents and farmers, including guidelines, seminars and newsletter and information regarding State programs. This information is presented to the residents, both in paper and internet formats.

The OSFPC publishes a newsletter that addresses recent preservation of land, local ordinances, how preservation laws work within the Township, and other issues. The Stormwater Pollution newsletter has raised awareness on fertilizers, pesticides, household cleaning products and pet waste. The Township website posts articles, newsletters, and information on upcoming seminars. Links to useful websites also are provided. The Township and Agricultural Advisory Committee (AAC) conduct regular landowners' outreach.

The Township offers mentorship programs to young farmers through Monmouth Conservation Foundation (MCF), Monmouth County Agricultural Development Board (MCADB), National Federation of Independent Business (NFIB), Rutgers Cooperative Extension (RCE) and the Monmouth County Fair.